Brofil Clean Air Solutions®

User manual Brofil
Operator Cab Pressurization & Filtration Systems

B10

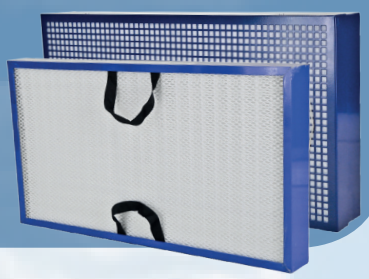
B20

B10
Super
Compact

B30

B10
Compact

Filters
- Dust
- Carbon



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To ensure a healthy and clean work environment a vehicle should be equipped with a **BROFIL** Cab Pressurization & Filtration System. This system is designed to supply clean filtered air in to the cabin, and when the cabin is sufficiently air tight, it will create a pressurized atmosphere in the cabin. Due to this pressurization of clean filtered air no pollutants are able to enter the cabin. There are several types of protective filter combinations available to optimise the result. Please ensure you are using the right combination and if in any doubt our staff will gladly advise you!

The system relies on the efficient use of filters; please check that these are changed regularly! Only then a hazardless environment can be ensured. Only use original **BROFIL** *filters suited for the type of work undertaken. This manual provides detailed information about the choice of filters and the system's operation and consequently, we advise that this manual is stored in the cabin of the equipped vehicle.*

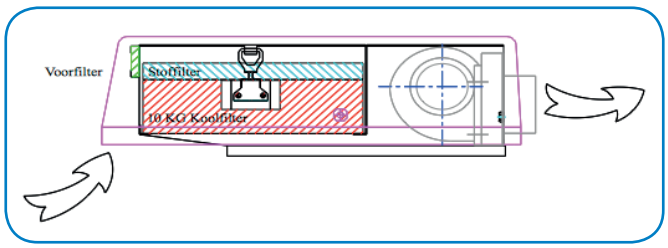
When entering a hazardous environment or starting work that requires filtering always check for yourself that the filters in the system are suitable for the type of pollution.

BROFIL cab pressurization & filtration systems can be supplied with a quick release frame so the system can be used on more than one vehicle. If this is the case for your vehicle we advise you to take a copy of this manual and keep it with the system for guidance and safety. After a machine change always check the pressurization level in the cabin before entering the work environment.

BROFIL advises you to carefully read this manual and become acquainted with the functioning of the filter system. BROFIL can not be held responsible for improper use of the system or damage as a result of using filters that were not supplied by BROFIL or the use of unsuitable filters.

1.1 Function

A fan motor blows filtered clean air into the cabin. With a properly airtight cabin an pressurized atmosphere will arise, preventing polluted air from entering the cabin. The fan speed is automatically adapted to the preset pressurization level and a minimum of 100 Pa is recommended. Some EU countries have legislation which decides the minimum cab pressurization, and therefore we advise you to check your local requirements before commencing any work.



ATTENTION!:
For a highly reliable functioning filter system it is absolutely necessary to have an air tight cabin, large gaps in doors and panels as well as open windows will result in excessive air leakage and insufficient pressurization (or even none at all). Polluted air can then enter the cabin and the operator will be exposed to a hazardous environment. Never work with open doors or windows!

1.2 Regulations

According to CROW 132:

Cab filtration & pressurization systems:

- CE mark
- The unit needs to be installed out of the line of vision of the driver / operator.
- Pressurization set between 100 and 300Pa.
- Airflow (40m³/hour < airflow < 120m³/hour).
- Incoming air can only be drawn in through the filters.
- The inlet of the filter unit installed in a position that the gasses from the exhaust cannot reach the inlet.
- Automatic start-up when the machine is turned on.
- The air outlet in the cabin positioned so that it is not directly aimed at the driver.
- No air leakage between filters and its housing.
- An optical warning signal when: the level of pressurization is too high or too low; the filters are in or not; and the amount of (poisoned) gas in the cabin is in excess of the prescribed level.

For filters:

- Dust filters (NEN-EN779 and NEN-EN1822) have to be replaced at least every 6 months or when they are visibly polluted.
- Activated carbon filters have to be replaced at least every 13 weeks, or when the PPM value in the cabin is above 5ppm.
- Activated carbon filter (NEN-EN 141) contains a minimum 10 kg activated granulate in the types A,B,E,K and Hg or a combination of these. The filter has to maintain at lease 48h by a concentration of 100ppm with an airflow of 120m³/h and a contact time of a minimum 0,2 seconds.

2.1 3-mode switch

By turning the switch on your control panel, you can start the operation of the pressurization & filtration system. A green control light will illluminate. The built-in fan has three speeds, which offers a choice of three levels of cabin pressurization. On initial installation of the system the cabin pressure is measured at the 3 different fan speeds and registered in the cabin pressurization report.

2.2 Automatic start-up

BROFIL cab pressurization & filtration system start up automatically when the ignition key is switched on. The unit can be temporally switched off by using the dash board switch.

2.3 A.O.C.

This optional feature provides a fully automatic air pressure control between 100 and 300 Pa. There is an automatic start after switching on the ignition and a filter warning system is included. It's also possible to have a gas sensor fitted in the A.O.C. for the detection of hydrocarbons (CH combinations) to monitor the amount of pollution in PPM within the cabin. All A.O.C. functions can be set with the remote unit.

2.3.1 Operating instruction A.O.C.

Function:

When the ignition key is switched on, the filter unit will start up automatically. Starting at a low RPM it will gradually increase the fan speed until the required pressure in the cabin is reached. All new units are pre-set by Brofil to 120 Pa but can be adapted to any value between 100-300 Pa by using the remote control unit.

For units fitted with a gas sensor please note:

Gas sensors need to heat an internal coil in order to measure particles of Hydro Carbon; this may take several minutes depending on the outside temperature. During this heating period there is no reliable PPM detection and the AOC unit will display 'ON'.

It is possible that the level of PPM's in a cabin at the start of a job is high, the filter system however will blow clean filtered air in to the cabin lowering the PPM number. Your display may show a high value but after 5-10 minutes the value should drop below the set value of 5 PPM. Only then you should start your work! If the value does not drop below this value please check your filters and/or the cabin pressure.

The PPM sensor is a delicate and highly sensitive piece of equipment, any Hydro Carbon pollution on working clothes, shoes, cleaning cloths or even cigarette smoke will result in a warning when the level is above the set value of 5 PPM.

The AOC can be equipped with an optical external warning signal that is activated when the set points are exceeded.

Functions remote board:

On-Off	Temporarily switching off the unit
Mute	Temporarily switching of the warning signal
Display Mode	Display of Pa or PPM values in the cabin

Changing the Pa value:

Press 'Display' button to set the display to ...PA, press 'up' or 'down' buttons to set a new value, confirm with pressing 'set'. The fan speed will adapt to the new set value.

Note: For health and safety reasons it is not possible to change the pre-set value of the gas sensor!

3.1 Dust filters

We've got dust filters classified for P1(according to EN 779 regulations) and P3 (according to EN 1822 regulations)

Type	Description	Pollution Levels	Protects against	Efficiency %
P1	Coarse dust	> 10mg/m^3	Harmless dust	Class 2a EU4-5
P3	Absolute	< 0,1 mg/m^3	Poisonous fine dust like asbestos, pollen, bacteria, viruses	Class 2c H13

3.2 Carbon filters

Categorised by the NEN 141 regulations there are various carbon types for the following gasses;

Discription	Type of activated carbon
Organic gasses	**A**
Inorganic gasses	**B**
Acid gasses	**E**
Ammonia	**K**
Mercury	**Hg**

It is possible to have a combination of carbons in one filter to optimise the range of filtration.

ATTENTION!:
The filter unit is supplied as standard with a carbon filter type A, suitable for organic gasses (most Hydro Carbon). Order Brofil type B, E, K, Hg or combination filters in any other circumstances!

The type of filter and its life span is determined by the level of pollution and the air tightness of your cabin. Less leakage results in a lower volume of air drawn over the filters resulting in a longer and more efficient use.

Always keep carbon filters in their original sealed packaging when being stored prior to use.

Carbon will start to deteriorate immediately when exposed to outside air or gasses, the filtration rate is limited by the absorption capacity. Once a carbon filter is used and saturated it should be treated as 'Chemical Waste' and disposed of responsibly (check your local legislation).

Brofil advises that protective clothing and breathing protection should always be used when changing filters.

3.2.1 Activated carbon types

Type 'A' Organic gasses, like Carbon Monoxide, Methane.

Type 'B' In-organic gasses like HCL, NO, H, S, HF, H^2S.

Type 'E' Acids, Arsenic, Hydrogen Cyanide, Phosphine, SO

Type 'Hg' Mercury

Type 'K' Ammonia

Type 'AX' Organic gasses, boilingpoint < 65°C

3.3 General guidelines and advice lifespan filters

3.3.1 General info filters

Dust filters:
The lifespan of a dustfilter depends on the rate of dust pollution it is working in. The filter will become saturated resulting in a high airflow resistance which lowers the pressurization in the cab. A dropping pressurization without noticeable air leak is usually a good indicator of saturated filters. Always change filters if the minimum level of 100 Pa is not reached within 2-3 minutes of starting up. We advise to register all filter changes in a logbook.

Active carbon filters:
Carbon is a natural micro filter that 'catches' pollutant molecules, once the surface of the carbon is saturated it will loose its function. This is not detected by dropping pressure in the cabin! The following parameters influence the life expectancy of the filter:

- The concentration of pollutant molecules in the air
- The volume of air (litres per minute) that flows through the filter
- The humidity and temperature of the air
- The 'affinity' of the type of carbon with the pollutant gasses (i.e. right type of carbon)

NEVER ATTEMPT TO CLEAN CARBON FILTERS WITH COMPRESSED AIR OR WASHING THEM! USED FILTERS CAN BE A HEALTH HAZARD!

It is almost impossible to calculate the exact life expectancy of a carbon filter but we advise to change immediately when one of the following situations occurs:

- Inside the cabin you smell the polluted outside air
- The PPM count of the gas sensor is above the safety level
- The legally prescribed time of use is passed (NEN regulation states 13 weeks maximum, check your local requirements).

3.3.2 Filter choices

Always check your choice of filter before starting a new job, if you already have filters in use always check the compatibility of those filters with the new job. Seek expert advice if you are in doubt. We advise to start every new job with a fresh set of filters and register all filter changes in a logbook (legal requirement is some EU countries).

3.3.3 Recommended changes

Dust Filters:
Minimum every 6 months or earlier when the pressurization drops below 100 Pa.

Carbon Filters:
Maximum 13 weeks after removing the protective seal of the filter regardless of the use or sooner if the amount of pollutants causes saturation of the filter.

Always handle used filters with care! Use personal protective clothing and breathing devices when discarding of filters. Most countries have regulations on how to discard of 'chemical waste' please ensure yourself about your local situation. Never attempt to clean used filters and regularly check the pressurization and PPM levels in your cabin. Check with your local health and safety officer if in any doubt.

3.4 Absorption capacity index

Indexation of 1 to 4 indicative gives the absorption capacity of activated carbon type A for common odors/gases/vapours, either air cleanings based on low concentrations.

INDEX	DESCRIPTION ABSORPTION CAPACITY
1	Very low absorption capacity. In the application 'odor removal' type A is **not suitable**.
2	Absorption capacity is low, however, with an application 'odor removal' are combinations of filters suitable.
3	Reasonable absorption capacity. Approx. 50-100 gr.(odor/gas/vapour) per kg. activated carbon.
4	Good absorption capacity. Approx. 100-200 gr.(odor/gas/vapour) per kg. activated carbon.

INDEX LIST

3 - Aceton
1 - Acetylene
3 - Acrolein
3 - Acrylaldehyde
4 - Acroleic acid
4 - Acrylonitrile
4 - Alcohol
4 - Liquor
2 - Amines
2 - Ammonia
4 - Amyl acetate
4 - Amyl alcohol
4 - Amylether
4 - Aniline
3 - Inorganic compound
4 - Antiseptic
4 - Asphalt fumes
3 – Exhaust fases
2 - Anisaldehyde
4 - Cellulose acetate
4 - Cellulose solvent
4 - Chlorobenzene
4 - Chlorobutadiene
4 - Chlorine Nitropropane
4 - Chlorine picrine
2 - Chlorine
4 - Chlorophorm
4 - Citrus fruits
3 - Corrosive gases
4 - Creosote
4 - Cresols
4 - Crotonaldehyde
4 - Cyclohexane
4 - Cyclohexanol
4 - Cyclohexanon
4 - Vapours
4 - Decane
4 - Deodorisation
3 - Ethyl chloride
3 - Ethyl ether
3 - Ethyl formate
4 - Ethyl mercaptan
4 - Ethyl Silicate
1 - Ethylene
4 - Ethylene chloride
4 - Ethyledichloride
3 - Ethylene oxide
4 - Essential oils
4 - Eucalyptus oils
3 - Fluorine Trichloromethane
2 - Formaldehyde
4 - Fruit
4 - Odor chicken farm
3 - Odor loose Earth
2 - Poison Gas
4 - Heptane
4 - Heptylene

4 - Acetic acid
3 - Bacteria
4 - Bathroom odors
4 - Balm odors
4 - Gasoline
3 - Bleach
4 - Flower fragrances
4 - Butyric acid
4 - Burning fat
1 - Fuel Gases
4 - Bromide
1 - Butane
3 - Butadiene
4 - Butanone
4 - Butyl acetate
4 - Butyl alcohol
4 - Butyl cellulose
4 - Butyl chloride
4 - Butyl ether
1 - Butylene
1 - Butyne
3 - Butyraldehyde
4 - Capryl acid
4 - Carbolic acid
3 - Carbon bisulfide
1 - Carbon dioxide (CO2)
1 - Carbon monoxide (CO)
4 - Carbon Tetrachloride
4 - Menthol
4 - Mercaptan
4 - Mesityl oxide
4 - Manure odors
1 - Methane
3 - Methyl acetate
4 - Methyl acrylic
3 - Methyl alcohol
3 - Methyl bromide
4 - Methyl cellusolve
4 - Methyl cellusolve acetate
3 - Methyl chloride
4 - Methyl chlorophorm
3 - Methyl ether
4 - Methyl ethyl ketone
3 - Methyl formate
4 - Methyl isobutyl ketone
4 - Methyl mercaptan
3 - Methylal
4 - Methylcyclohexan
4 - Methylcyhexanol
4 - Methylcyclohexanone
4 - Methylene chloride
4 - Fog
4 - Disinfectants
4 - Dibromoethane
4 - Dichlorobenzene
3 - R12
4 - Dichloroethane
4 - Dichloroethylene
4 - Dichloroethylene ether
3 - Dichloor Mono Fluorine Methane
4 - Nitro Dichloromethane
4 - Dichloropropane
3 - Dichloro tetrafluorethan
3 - Animal scents
3 - Diesel gases
3 - Diethyl amine
4 - Diethyl ketone
4 - Dimethylaniline
4 - Dimethyl sulfate
4 - Dioxane
4 - Dipropy ketone
4 - Cadaver odors
1 - Ethane
3 - Ether
4 - Ethyl acetate
4 - Ethyl acrylic
4 - Ethyl alcohol
3 - Ethylamine
4 - Ethyl benzene
3 - Ethyl bromide
4 - Paradichlorobenzene
4 - Perfumes, cosmetics
4 - Pastas
3 - Pek
3 - Pethan
4 - Pentanone
3 - Pentylene
3 - Pentyne
4 - Fenol
2 - Phosgene
4 - Popcorn and confectionery
1 - Propane
3 - Propionic aldehyde
4 - Propionic acids
4 - Propyl acetate
4 - Propyl alcohol
4 - Propyl chloride
4 - Propyl ether
4 - Propyl mercaptan
1 - Propylene
4 - Sulfuric acid
4 - Putrescine
4 - Pyridine
4 - Rancid oil
3 - Hexane
3 - Hexylene
3 - Hexyne
4 - Indole
3 - Industrial waste
4 - Indien
4 - Irritants
4 - Isophorone
3 - Isoprene
4 - Isopropyl acetate
4 - Isopropyl alcohol
4 - Isopropyl ether
4 - Cheese
4 - Camphor
4 - Kerosene
4 - Kitchen odors
4 - Garlic odor
3 - Coal smoke
4 - Cooking odors
4 - Coal Tar
4 - Cold fire odors
4 - Fertilizer
4 - Lactic acid
4 - Paint fumes
4 - Body odors
4 - Adhesives
4 - Lysol
3 - Mildew
4 - Toluene
4 - Toluidine
4 - Perspiration odor
4 - Trichloroethylene
4 - Onions
3 - Exhaust Gases
4 - Urea
4 - Urea acid
4 - Valeric acid
4 - Burnt food
4 - Burnt meat
3 - Combustion odors
4 - Paint odors
4 - Scorched materials
3 - Vinylchloride
3 - Viruses
4 - Fish odors
4 - Liquid fuels
4 - Food odors
4 - Laundry detergents
1 - Hydrogen
2 - Hydrogen bromide
2 - Hydrogen chloride
2 - Hydrogen cyanide

4 - Monochlorobenzene
3 - Monofluor Trichloromethane
4 - Mothballs
4 - Musty odors
4 - Naphtha (petroleum)
4 - Naphtaline
4 - Nicotine
4 - Nitro benzene
4 - Nitromethane
4 - Nitroglycerin
4 - Nitropropane
4 - Nitroluene
4 - Nonane
4 - Ocylene
4 - Octane
3 - Incomplete combustion
3 - Solvents
4 - Organic compound
4 - Ancient manuscripts
2 - Ozone
4 - Warehouse odors
4 - Palm acid
4 - Paper destruction
4 - Sewer air
4 - Smoke
4 - Rotting ingredients
4 - Raisins
4 - Rubber
4 - Ripening fruit
2 - Nitric acid
4 - Cleaning agents
4 - Cigarette smoke
4 - Skatole
3 - Slaughter odors
4 - Lubricating oil and fats
1 - Nitrogen dioxide
4 - Styrene monomer
3 - Sulphur trioxide
4 - Tar
3 - Tarry odors
4 - Turpentine
4 - Tetrachloroethylene
3 - Tetrahydrofuran
3 - Textile dyeing
4 - Theater Odors
4 - Toilet odors
2 - Hydrogen fluoride
2 - Hydrogen iodide
1 - Hydrogen selenide
2 - Hydrogen sulfide
4 - Incense
4 - Xylene
4 - Glacial acetic acid
4 - Soap
4 - Hospital odor
4 - Sour milk
3 - Acids
4 - Sauerkraut
3 - Sulphur
2 - Sulphur dioxide

4.1 Implementation options

4.1.1 Brofil B10

- 304 stainless steel with plastic cover
- Unit can contain a 10kg carbon filter with a P1 or a P3 dustfilter
- Filter dimensions: 600 x 336 mm
- Unit dimensions: 705 x 662 x 200 mm

Implementations:

Brofil B10 10kg
- P1 pre-filter
- P1 dust filter
- Activated carbon filter type A, 10kg

General application for trucks or excavators, which are constantly on polluted territory.

Brofil B10 asbestos
- P1 pre-filter
- P1 dust filter
- P3 dust filter (60mm)

General application for trucks or excavators in areas at risk of asbestos contamination.

Brofil B10 Compost
- P1 pre-filter
- P3 dust filter (60mm)
- Activated carbon filter type AK, 10kg

General application for trucks or digging machines in areas of waste management companies.

4.1.2 Brofil B10 Super Compact

- Unit can contain a 10kg carbon filter with a P1 and/or a P3 filter.
- Filter dimensions: 600 x 336 mm
- Unit dimensions: 810 x 405 x 245 mm

Implementations:

Brofil B10 Super compact 10kg
- P1 dust filter
- Activated carbon filter type A, 10kg

General application for excavators, shovels, etc. which are constantly polluted territory.

Brofil B10 Super compact Asbestos
- P1 dust filter
- P3 dust filter (60mm)

General application for excavators, shovels etc. for areas at risk of asbestos contamination.

Brofil B10 Super compact Compost
- P3 dust filter (28mm)
- Activated carbon filter type A, 10kg

General application for excavators, shovels, etc. in areas of waste management companies.

4.1.3 Brofil B10 Compact

- Unit can contain a 10kg carbon filter with a P1 and a P3 filter.
- Filter dimensions: 600 x 336 mm
- Unit dimensions: 860 x 440 x 305 mm

Implementations:

Brofil B10 Compact 10kg
- P1 pre-filter
- P1 dust filter
- Activated carbon filter type A, 10kg

General application for excavators, shovels, etc. which are constantly on polluted territory.

Brofil B10 Compact Asbestos
- P1 pre-filter
- P1 dust filter
- P3 dust filter (60mm)

General application for excavators, shovels etc. for areas at risk of asbestos contamination.

Brofil B10 Compact Compost
- P1 pre-filter
- P1 dust filter
- P3 filter (60mm)
- Activated carbon filter type A, 10kg

General application for excavators, shovels, etc. in areas of waste management companies.

4.1.4 Brofil B20

- Unit can contain a 20kg carbon filter with a P1 and a P3 filter.
- Filter dimensions: 600 x 336 mm
- Unit dimensions: 810 x 405 x 400 mm

Implementations:

Brofil B20 Compact 20kg
- P1 pre-filter
- P1 dust filter
- Activated carbon filter type A, 2x 10kg (=20kg)
- Suitable for highly contaminated areas

General application for excavators, shovels ect. which are constantly on polluted territory.

Brofil B20 Compact Asbestos
- P1 pre-filter
- P1 dust filter
- P3 dust filter

General application for excavators, shovels etc. for areas at risk of asbestos contamination.

Brofil B20 Compact Compost
- P1 pre-filter
- P1 dust filter
- P3 dust filter
- Activated carbon filter type A, 2x 10kg (=20kg)

General application for excavators, shovels, etc. in areas of waste management companies.

4.1.5 Brofil B30

- Unit can contain a 30kg carbon filter with a P1 and a P3 filter.
- Filter dimensions: 595 x 595 mm
- Unit dimensions: 815 x 670 x 345 mm

Implementations:

Brofil B30 Compact 30kg
- P1 or P3 dust filter
- Activated carbon filter type A, 30kg
- Suitable for highly contaminated areas

General application for excavators, shovels, etc. which are constantly on polluted territory.

Brofil B30 Compact Asbestos
- P1 dust filter
- P2 dust filter
- P3 dust filter

General application for excavators, shovels etc. for areas at risk of asbestos contamination.

Brofil B30 Compact GFT
- P1 dust filter
- P2 dust filter
- P3 dust filter
- Activated carbon filter type A, 30kg

General application for excavators, shovels, etc. in areas of waste management companies.

4.2 Specification

Voltage/power: 12V/190W, 24V/360W - 3 mode switch
24V/160 - A.O.C.

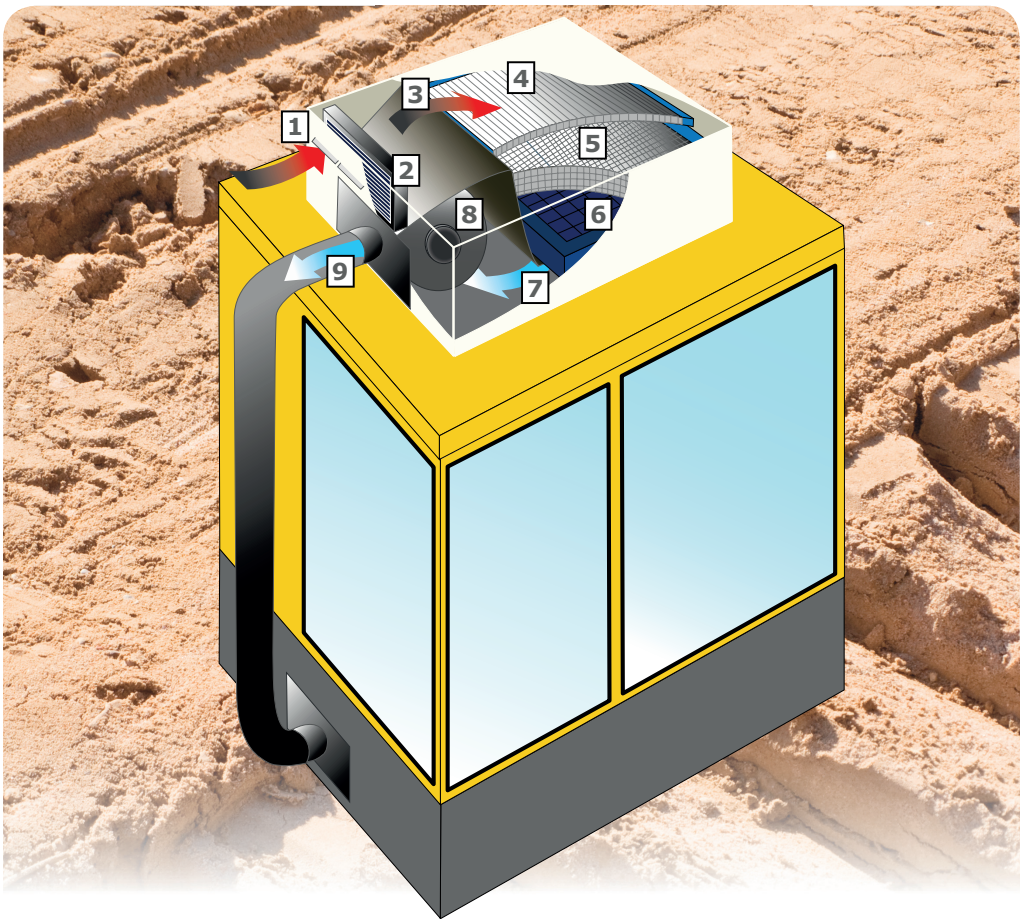
Housing: 304 stainless steel

- Fan-space separated from filter compartment.
- Manual registration is included with delivered filter/ unit.
- Pressurization measurement report also included with delivered filter/ unit.
- The cab pressurization & filtration systems meet current Health and Safety policies guidelines CROW and NEN4444.
- As an option, the unit can be supplied with a filter registration and / or a Brofil AOC for the measurement of the pressurization and detection of polluted air.

We can also offer to make your own pressurization & filtration system suitable according to CROW. These kits include an automatic start-up fan control, which automaticly starts when the ignition of your vehicle is turned on. Then the system regulates the pressurization in your cabin to a pre-set value. The system also monitors the presence of filters in your unit. With a PPM sensor the pollution level in your cabin can be measured. If this is above the permissible value of 5ppm, or when the pressurization value is below 100Pa, there will be a warning signal. This may also be connected to a warning lamp, that will be mounted on the cabin, which is visible from the outside.

4.3 Function illustration

1. Air inlet
2. Pre-filter P1
3. Polluted air
4. Dust filter P1 or P2
5. Dust filter P3
6. Active carbon filter
7. Filtered air
8. Blower
9. Air outlet



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For the Brofil B10 Pressurization & Filtration System we can deliver the following filters.

5.1 Pre-filters

Type	Class	Dimensions	Partnumber
Pre-filter P1 B10	EU4/5	604x120x10	61-9000
Pre-filter P1 B10 compact/ B20	EU4/5	400x110x10	61-9002
Pre-filter P1 B30	EU4/5	660x120x10	61-9003

5.2 Dustfilters B10/B20

Type	Class	Dimensions	Partnumber
Dustfilter P1	EU4/5	600x336x28	61-1001
Dustfilter P3	H13	600x336x28	63-1001
Dustfilter P3	H13	600x336x60	63-1002

5.3 Dustfilters B30

Type	Class	Dimensions	Partnumber
Dustfilter P1	EU4/5	595x595x30	63-3001
Dustfilter P3	H13	595x595x30	63-3002
Dustfilter P3	H13	595x595x50	61-3001

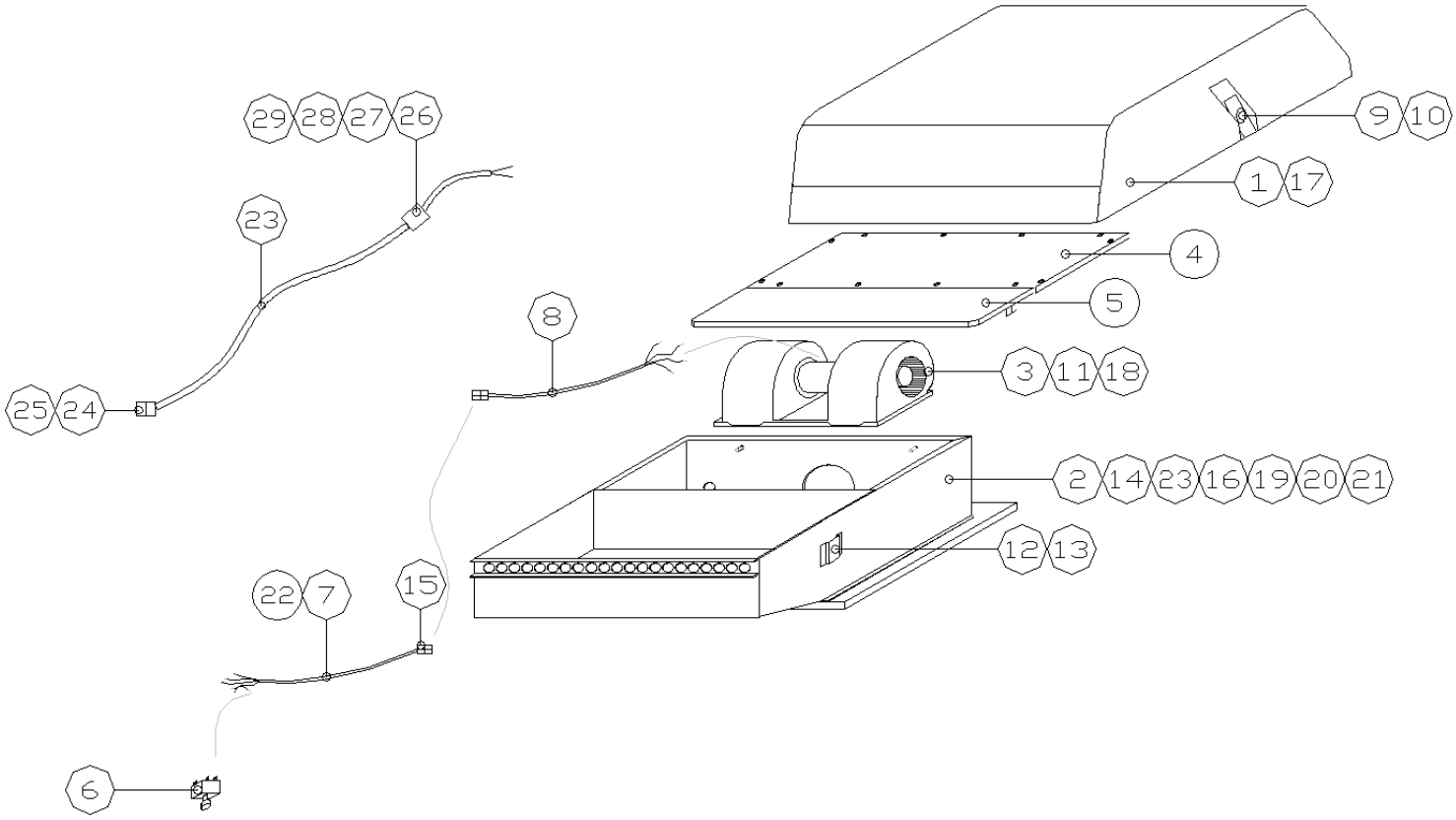
5.4 Carbonfilters B10/B20

Type	Weight	Dimensions	Partnumber
Carbonfilter A	10kg	600x336x92	64-150
Carbonfilter B	10kg	600x336x92	64-151
Carbonfilter E	10kg	600x336x92	64-152
Carbonfilter K	10kg	600x336x92	64-153
Carbonfilter Hg	10kg	600x336x92	64-160
Carbonfilter AB	10kg	600x336x92	64-154
Carbonfilter AE	10kg	600x336x92	64-155
Carbonfilter AK	10kg	600x336x92	64-156
Carbonfilter AEK	10kg	600x336x92	64-157
Carbonfilter ABEK	10kg	600x336x92	64-158

5.5 Carbonfilters B30

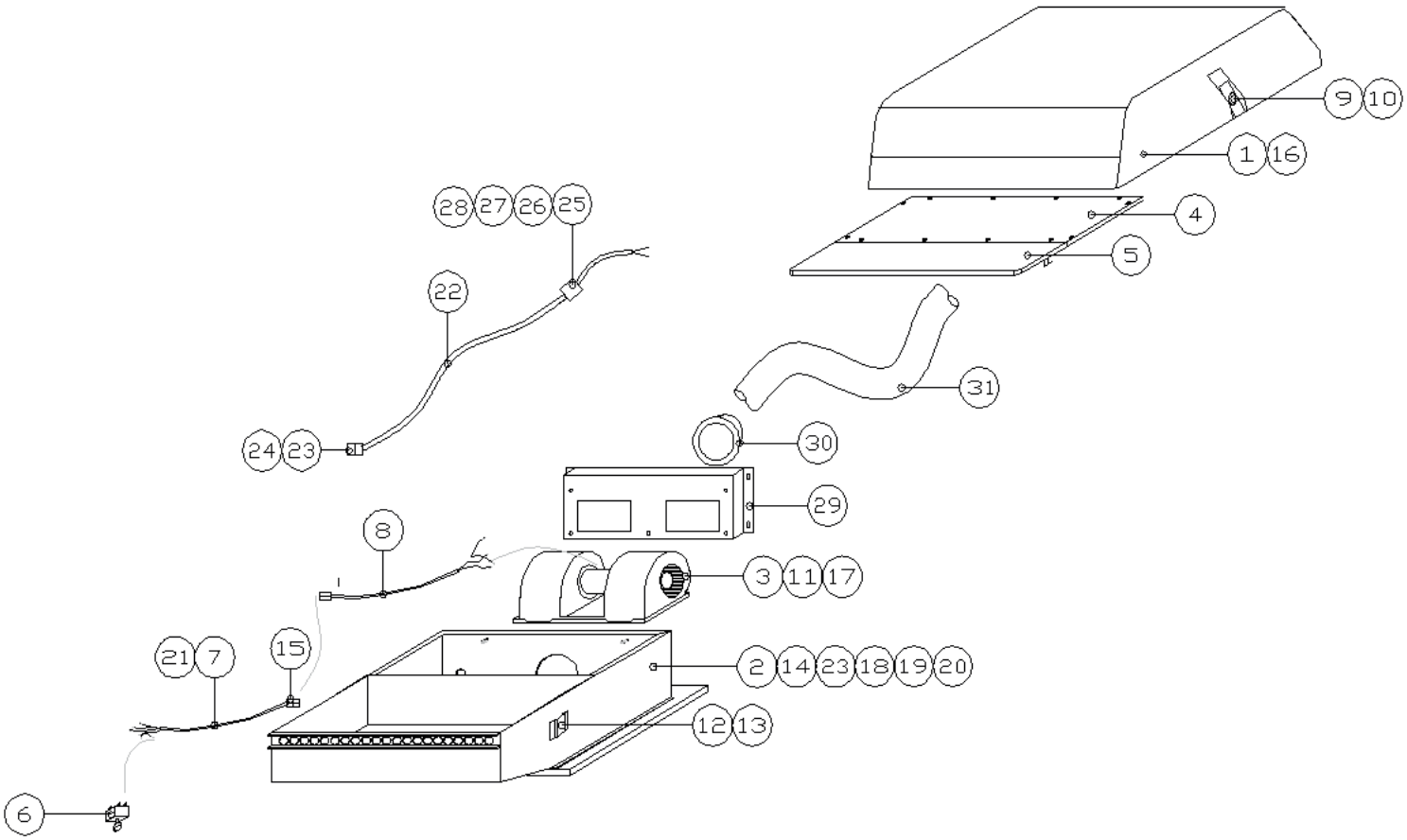
Type	Weight	Dimensions	Partnumber
Carbonfilter A	17kg	595x595x70	64-310
Carbonfilter B	17kg	595x595x70	64-311
Carbonfilter E	17kg	595x595x70	64-312
Carbonfilter K	17kg	595x595x70	64-313
Carbonfilter AB	17kg	595x595x70	64-314
Carbonfilter AE	17kg	595x595x70	64-315
Carbonfilter AK	17kg	595x595x70	64-316
Carbonfilter AEK	17kg	595x595x70	64-317
Carbonfilter ABEK	17kg	595x595x70	64-158
Carbonfilter ABEK Hg	17kg	595x595x70	64-319
Carbonfilter A	22kg	595x595x100	64-330
Carbonfilter B	22kg	595x595x100	64-331
Carbonfilter E	22kg	595x595x100	64-332
Carbonfilter K	22kg	595x595x100	64-333
Carbonfilter AB	22kg	595x595x100	64-334
Carbonfilter AE	22kg	595x595x100	64-335
Carbonfilter AK	22kg	595x595x100	64-336
Carbonfilter AEK	22kg	595x595x100	64-337
Carbonfilter ABEK	22kg	595x595x100	64-338
Carbonfilter ABEK Hg	22kg	595x595x100	64-339

6.1 B10 'Hatch mounted'



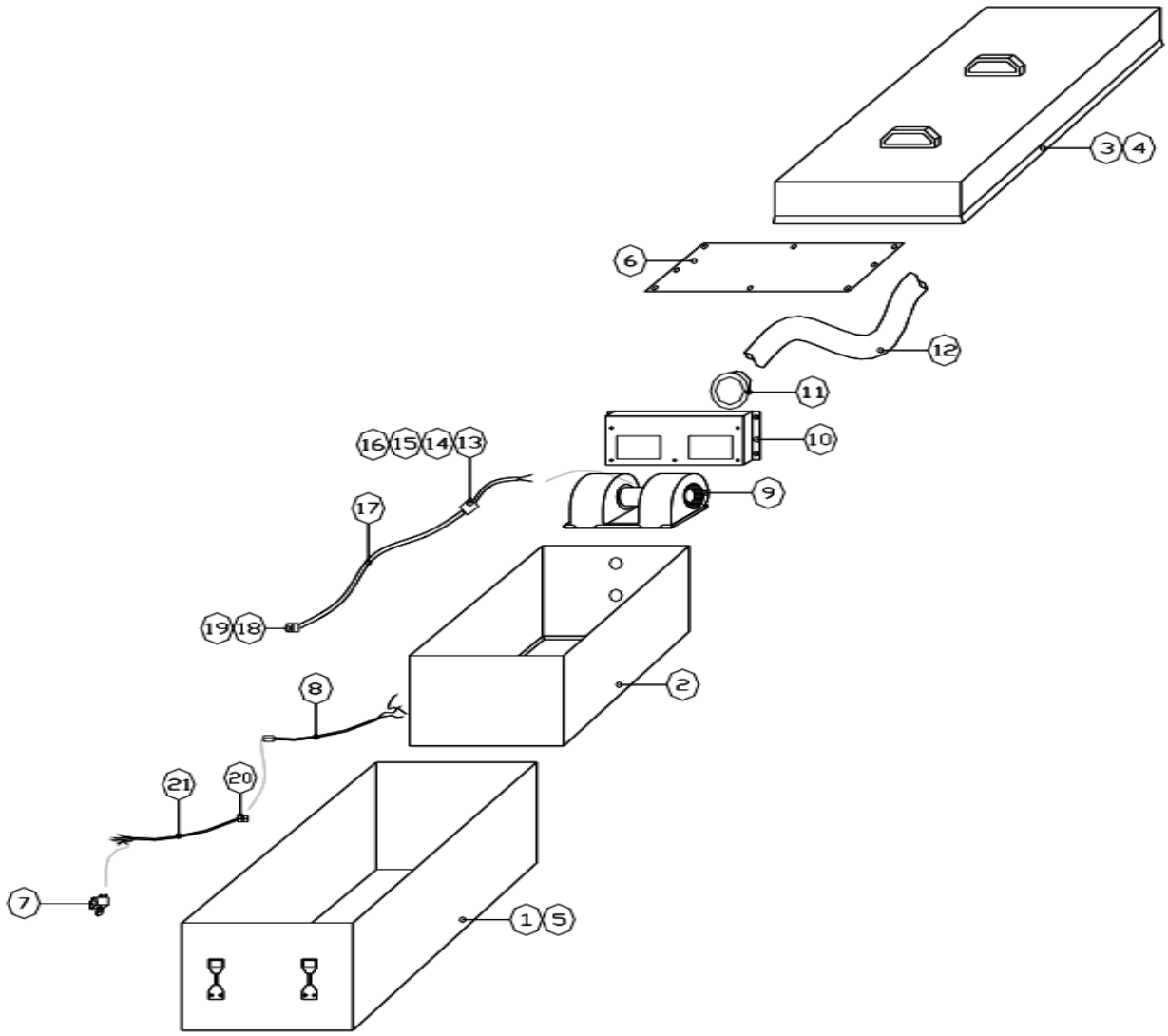
No.	Part No.	Description	Pcs.	No.	Part No.	Description	Pcs.
1		White B10 Cover	1	15		4-pin male connector	1
2		Filterbox B10	1	16		Adhesive rubber 25x20	2-3
3		Twin blower 24V 006B5022	1	17		Label Brofil B10	1
4		Cover blower	1	18		Gasket blower	2
5		Lid filters	1	19		Adhesive rubber 12 x 3	5
6		3-mode switch	1	20		Stop Pg 11 black	1
7		Brofil Harness switch	1	21		Nut PG 11	2
8		Brofil Harness blower	1	22		Gland Pg 11	1
9		Housing 28mm	4	23		Cable 2 x 2,50	2
10		Hexagon M10x20 zinc plated	4	24		Pin	2
11		Metal screw M4x10 Phillips	4	25		2-pin male connector	1
12		Quick release B10	2	26		Blue kabeloog M6	2
13		Metal screw M4x10	4	27		Cable Slide iso 6,3 x 0,8	2
14		Phillips head screw M5x10	10	28		Fuse Holder	1
				29		Fuse 15A	1

6.2 B10 'Rear outlet'



No.	Part No.	Description	Pcs.	No.	Part No.	Description	Pcs.
1		White B10 Cover	1	17		Gasket blower	2
2		Filterbox B10	1	18		Adhesive rubber 25x20	5
3		Twin blower 24V 006B5022	1	19		Stop Pg 11 black	1
4		Cover blower	1	20		Nut PG 11	2
5		Lid filters	1	21		Gland Pg 11	1
6		3-mode switch	1	22		Cable 2 x 2,50	2
7		Brofil Harness switch	1	23		Pin Silver	2
8		Brofil Harness blower	1	24		2-pin male connector	1
9		Housing 28mm	4	25		Blue kabeloog M6	2
10		Hexagon M10x20 zinc plated	4	26		Cable Slide iso 6,3 x 0,8	2
11		Metal screw M4x10 Phillips	4	27		Fuse Holder	1
12		Quick release B10	2	28		Fuse 15A	1
13		Metal screw M4x10	5	29		Air Distribution House	1
14		Phillips screw head M5x10	10	30		Flue collar round 100mm	1
15		4-pin male connector	1	31		Air hose Round 102 mm	3
16		Label Brofil B10	1				

6.3 B10 Compact



No.	Part No.	Description	Pcs.	No.	Part No.	Description	Pcs.
1		Filterbox B10 Compact	1	12		Air hose Round 102 mm	3
2		Inner box	1	13		Blue kabeloog M6	2
3		Cover	1	14		Cable Slide iso 6,3 x 0,8	2
4		Handle	2	15		Fuse Holder	1
5		Quick Release B10	4	16		Fuse 15A	1
6		Cover blower	1	17		Cable 2x2,50	2
7		3-mode switch	1	18		Pin Silver	2
8		Brofil Harness switch	1	19		2-pin male connector	1
9		Twin blower 24V 006B5022	1	20		4-pin male connector	1
10		Air Distribution House	1	21		Brofil Harness switch	1
11		Flue collar round 100mm	1				

6.4 B10 Super Compact

No.	Part No.	Description	Pcs.	No.	Part No.	Description	Pcs.
1		White B10 Cover	1	17		Gasket blower	2
2		Filterbox B10	1	18		Adhesive rubber 25x20	5
3		Twin blower 24V 006B5022	1	19		Stop Pg 11 black	1
4		Cover blower	1	20		Nut PG 11	2
5		Lid filters	1	21		Gland Pg 11	1
6		3-mode switch	1	22		Cable 2 x 2,50	2
7		Brofil Harness switch	1	23		Pin Silver	2
8		Brofil Harness blower	1	24		2-pin male connector	1
9		Housing 28mm	4	25		Blue kabeloog M6	2
10		Hexagon M10x20 zinc plated	4	26		Cable Slide iso 6,3 x 0,8	2
11		Metal screw M4x10 Phillips	4	27		Fuse Holder	1
12		Quick release B10	2	28		Fuse 15A	1
13		Metal screw M4x10	5	29		Air Distribution House	1
14		Phillips screw head M5x10	10	30		Flue collar round 100mm	1
15		4-pin male connector	1	31		Air hose Round 102 mm	3
16		Label Brofil B10	1				

6.5 B20 Compact

No.	Part No.	Description	Pcs.	No.	Part No.	Description	Pcs.
1		White B10 Cover	1	17		Gasket blower	2
2		Filterbox B10	1	18		Adhesive rubber 25x20	5
3		Twin blower 24V 006B5022	1	19		Stop Pg 11 black	1
4		Cover blower	1	20		Nut PG 11	2
5		Lid filters	1	21		Gland Pg 11	1
6		3-mode switch	1	22		Cable 2 x 2,50	2
7		Brofil Harness switch	1	23		Pin Silver	2
8		Brofil Harness blower	1	24		2-pin male connector	1
9		Housing 28mm	4	25		Blue kabeloog M6	2
10		Hexagon M10x20 zinc plated	4	26		Cable Slide iso 6,3 x 0,8	2
11		Metal screw M4x10 Phillips	4	27		Fuse Holder	1
12		Quick release B10	2	28		Fuse 15A	1
13		Metal screw M4x10	5	29		Air Distribution House	1
14		Phillips screw head M5x10	10	30		Flue collar round 100mm	1
15		4-pin male connector	1	31		Air hose Round 102 mm	3
16		Label Brofil B10	1				

6.6 B30 Compact

No.	Part No.	Description	Pcs.	No.	Part No.	Description	Pcs.
1		White B10 Cover	1	17		Gasket blower	2
2		Filterbox B10	1	18		Adhesive rubber 25x20	5
3		Twin blower 24V 006B5022	1	19		Stop Pg 11 black	1
4		Cover blower	1	20		Nut PG 11	2
5		Lid filters	1	21		Gland Pg 11	1
6		3-mode switch	1	22		Cable 2 x 2,50	2
7		Brofil Harness switch	1	23		Pin Silver	2
8		Brofil Harness blower	1	24		2-pin male connector	1
9		Housing 28mm	4	25		Blue kabeloog M6	2
10		Hexagon M10x20 zinc plated	4	26		Cable Slide iso 6,3 x 0,8	2
11		Metal screw M4x10 Phillips	4	27		Fuse Holder	1
12		Quick release B10	2	28		Fuse 15A	1
13		Metal screw M4x10	5	29		Air Distribution House	1
14		Phillips screw head M5x10	10	30		Flue collar round 100mm	1
15		4-pin male connector	1	31		Air hose Round 102 mm	3
16		Label Brofil B10	1				

Measurement report of cabin pressure

Brand vehicle :_
Type :_
VIN :_
Licence plate :_
Year of manufact. :_

Report number :_
Order number :_
Part number :_
Type of system :_

Installed filters	Serial number	Type	Part no.

Installation date :_

Date of measurements :_

Pressure-3speed :_____Mode 1
:_____Mode 2
:_____Mode 3

Pressure-A.O.C. :_

Note :_

Measured by
employee :_

Approved by Techno Trading International B.V.

CE CONFORMITY MARKING AND EC DECLARATION OF CONFORMITY FOR MACHINES (Directive 2006/42/EG)

Manufacturer:
Techno Trading International BV
Strijmaden 7
4703 RG ROOSENDAAL
THE NETHERLANDS

Declares that:

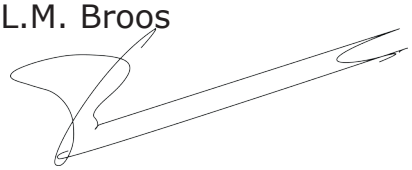
Brofil Cab Pressurization & Filtration Systems of the type Brofil B10, B10 Super Compact, B10 Compact, B20 and B30 with the original, previously prescribed filters:

- comply with the Machinery Directive (2006/42/EG)
- comply with the harmonized European Norms:
  -EN 292-1
  -EN 292-2
- Risk assessment and risk reduction were performed according to European standards EN 292, EN 414 and prEN 1050.

Done to Roosendaal, August 2013

Brofil Clean Air Solutions LLC,

P.L.L.M. Broos



Brofil Clean Air Solutions®

User manual Brofil
Cab Pressurization & Filtration Systems